

## CLAIMS:

1. A channel-shaped structural beam comprising:-  
a planar elongate web; and,  
hollow parallel sided flanges extending parallel to each other  
perpendicularly from a plane of said web along opposite sides thereof, said  
hollow flanges both extending in the same direction away from said plane of  
said web, said beam characterized in that a ratio of the width of each said  
flange between opposite end faces thereof in a direction perpendicular to  
said plane of said web and the depth of said beam between opposite outer  
faces of said flanges in the ratio of from 0.2 to 0.4.
2. A beam as claimed in claim 1 wherein the ratio of the width of  
each said flange to the depth of said flange is in the range of from 1.5 to 4.0.
3. A beam as claimed in claim 1 wherein the ratio of the width of  
each said flange to the thickness of the web is in the range of from 15 to 50.
4. A beam as claimed in claim 2 wherein the ratio of said width of  
each said flange and the depth of each said flange is in the range of from 2.5  
to 3.5
5. A beam as claimed in claim 4 wherein the ratio of said width of  
each said flange and said depth of each said flange is in the range of from  
2.8 to 3.2.
6. A beam as claimed in claim 1 wherein the ratio of the width of  
each said flange to the depth of said beam may be in the ratio of from 0.25  
to 0.35.
7. A beam as claimed in claim 6 wherein the ratio of the width of  
each said flange to the depth of said beam is in the range of from 0.28 to  
0.32.
8. The beam as claimed in claim 3 wherein the ratio of the width  
of the flange to the thickness of the web may be in the range of from 25 to  
35.
9. A beam as claimed in claim 8 wherein the ratio of the width of  
the flange to the thickness of the web is in the range of from 28 to 32.
10. A beam as claimed in claim 1 wherein said beam is fabricated

from steel.

11. A beam as claimed in claim 10 wherein said beam is fabricated from high strength steel greater than 300 MPa.

5 12. A beam as claimed in claim 10 wherein said beam is fabricated from stainless steel.

10 13. A beam as claimed in claim 1 wherein said beam is fabricated from a planar web member with a hollow flange member continuously welded along opposite sides of said web member, each said hollow flange member having an end face lying substantially in the same plane as an outer face of said web member.

14. A beam as claimed in claim 1 wherein said beam is fabricated from a single sheet of steel.

15. A beam as claimed in claim 1 wherein said beam is fabricated by a folding process.

15 16. A beam as claimed in claim 1 wherein said beam is fabricated by a roll forming process.

17. A beam as claimed in claim 16 wherein free edges of hollow flanges are continuously seam welded to an adjacent web portion to form closed hollow flanges.

20 18. A beam as claimed in claim 17 wherein said free edges of said hollow flanges are continuously seam welded to said one face of said web intermediate opposite edges of said web.

25 19. A beam as claimed in claim 17 wherein said free edges of said hollow flanges are continuously seam welded along respective side boundaries of said web.

20. A beam as claimed in claim 1 wherein said structural beam is fabricated in a continuous cold rolling process.

30 21. A beam as claimed in claim 20 wherein said free edges of said hollow flanges are continuously seam welded by a non-consumable electrode welding process.

22. A beam as claimed in claim 14 wherein said free edges of said hollow flanges are continuously seam welded by a consumable electrode

process.

23. A beam as claimed in claim 21 wherein said free edges of said hollow flanges are continuously seam welded by a ERW process.

5 24. A beam as claimed in claim 1 wherein said structural beams are fabricated from sheet steel having a corrosion resistant coating.

25. A beam as claimed in claim 21 wherein said structural beams are coated with a corrosion resistant coating subsequent to welding of said free edges of said flanges.

10 26. A beam as claimed in claim 1 wherein said web includes stiffening ribs.

27. A beam as claimed in claim 26 wherein the stiffening ribs extend longitudinally of said web.

28. A beam as claimed in claim 26 wherein said stiffening ribs extend transversely of said web.

15 29. A beam as claimed in claim 1 wherein each said flange includes one or more longitudinally extending stiffening ribs.

**AMENDED CLAIMS**

[received by the International Bureau on 25 August 2004 (25.08.04);  
Claim 1 is amended, original claims 2-29 are unchanged (1 page) ]

1. A channel-shaped structural beam comprising:-  
a planar elongate web; and,  
hollow parallel sided flanges extending parallel to each other  
perpendicularly from a plane of said web along opposite sides thereof, said  
hollow flanges both extending in the same direction away from one face of  
said web, said beam characterized in that a ratio of the width of each said  
flange between opposite end faces thereof in a direction perpendicular to  
said plane of said web and the depth of said beam between opposite outer  
faces of said flanges in the ratio of from 0.2 to 0.4.
2. A beam as claimed in claim 1 wherein the ratio of the width of  
each said flange to the depth of said flange is in the range of from 1.5 to 4.0.
3. A beam as claimed in claim 1 wherein the ratio of the width of  
each said flange to the thickness of the web is in the range of from 15 to 50.
4. A beam as claimed in claim 2 wherein the ratio of said width of  
each said flange and the depth of each said flange is in the range of from 2.5  
to 3.5
5. A beam as claimed in claim 4 wherein the ratio of said width of  
each said flange and said depth of each said flange is in the range of from  
2.8 to 3.2.
6. A beam as claimed in claim 1 wherein the ratio of the width of  
each said flange to the depth of said beam may be in the ratio of from 0.25  
to 0.35.
7. A beam as claimed in claim 6 wherein the ratio of the width of  
each said flange to the depth of said beam is in the range of from 0.28 to  
0.32.
8. The beam as claimed in claim 3 wherein the ratio of the width  
of the flange to the thickness of the web may be in the range of from 25 to  
35.
9. A beam as claimed in claim 8 wherein the ratio of the width of  
the flange to the thickness of the web is in the range of from 28 to 32.
10. A beam as claimed in claim 1 wherein said beam is fabricated